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Inaugural Essay

On

Mercury

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By

Stephen Bailey

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Among the numerous remedies of the Materia Medica at this period, there are none that posess more active, and consequently more dangerous powers than the mercurial medicines. In the mildest and simplest preparations, this metal it is well known exerts an extensive influence over the whole system. Equally true is, it that many of them are so deleterious that they cannot be administered even in small doses, without speedily destroying the life of the individual.

For some length of time after the introduction of it, as an article of the Materia Medica, it was only resorted to, as a remedy on the most urgent occasions. But this precaution, is now almost entirely abandoned, and there exist but little doubts, that it is exhibited by many respectable practitioners of this as well as other countries, with probably too little hesitation. This indiscriminate employment of an active remedy as this, it has been the labour of some few writers to denounce, and to their writings we are much indebted for haveing pointed

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out many of the dangerous effects that have and may of course again result from a too liberal and ungarded use of them. They have shown conclusively that the mercurial medicines, have not only been wantonly abused, but that they have often aggravated the existing disease and been productive of new ones.

As a medicine there is scarcely an indication that it may not by a proper management supply, but from the peculiarities of its properties and modes of its operation, writers have not been able for the want of this knowledge, to assign to it a proper place among the remedial agencies nor have they been able, to agree upon such general principles for its administration as to enable even the most experienced practitioner to use without sometimes abusing it.

I must here acknowledge that I do not intend to attempt deducing such general principles as will illustrate its operation neither will it I hope

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be expected of me, a mere tyro in the science of medicine, when it has so often been unsuccessfully attempted by the ablest of the medical profession, neither I feare shall I be able for the want of time to enter minutely into the consideration of the subject, as it justly merits. It would not only extend this essay far beyond the limits that is usually assigned to an inaugural dissertation, but it would require a fund of information to which I can offer no pretensions.

When the effects of mercury upon the human body are accurately investigated & duly considered, it cannot fail to point out to us that infinate danger must have happened from its use in many instances, and that it has been too much relied on in the treatment of many diseases, which afflicts the human race. From the danger that always exists in the administration of the mercurial medicines in any form or preparation a safe substitute for so violent a remedy ought to be found, when from the

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nature of the case, they are not absolutely called for. It is not intended by these remarks to allege that there are no cases whatever in which none of the mercurials ought to be employed, but it is contended that there is strong objections to their use in the treatment of many and especially febrile diseases, not only because they are incompatible with the indications that they are intended to fulfill, but that they are in many instances attended with eminent danger. It is the object of this essay to enumerate the effects that are produced from their use, and to enquire under what circumstances they may be relied on in the treatment of febrile diseases. In doing so I shall take the liberty of availing my self of the recorded facts and observations of others to illustrate those observations. In detailing the effects that are produced upon the human system by the preparations of mercury either internally exhibited or externally applied, it may be necessary for me to remark, in

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this place, that whether they may operate on the general system through the medium of the blood or communicated through the medium of the nervous system, they very seldom fail when given in sufficient quantities to produce many distressing consequences.

The effects of mercury on the general system. It at first increases the action of the heart and arteries the pulse becomes quick, tense and occasionally full, this state is soon followed by tenderness of the gums, accompanied with a peculiar metallic taste of the mouth and fector of the breath and of the perspiration, carried to a greater extent, the tongue, gums and salivary glands, become swelled, and the teeth painful and loose. This state continuing for some time, is succeeded by an abundant flow of saliva, and not unfrequently a copious discharge from the liver, pancreas, kidneys, &c. Small ulcerations make their appearence on the tongue, gums and roof of the mouth, the appetite fails occasionally pains

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are felt in the stomach and bowels the countenance acquires a peculiar appearance, indicative of a disordered nervous irritability of the system, and much debility and emaciation takes place.

The effects of the mercurial medicines upon the general system which have been enumerated appear upon a minute examination to be attended with the most obvious circumstances that attend on febrile and inflammatory disorders. Thus the increased action of the heart and arteries throughout every part of the body, which is attended with an augmentation of animal heat, does not differ from what usually occurs in these diseases. But in febrile affections there is not any alteration upon the sensible qualities of the blood, neither is there any unusual flow of the serous secretions in inflammatory disorders there is a manifest alteration in the blood and not unfrequently there is either some one of the secretions inordinately increased or there is a loose consistence, more frequently the last condition occurs while the reverse happens

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where the increased action of the heart and arteries is occasioned by the use of mercury. another difference between the action produced by mercury and that of inflammatory disorders is, that the impressions made on the muscular system by inflammatory diseases are not so debilitating as those which are produced by mercury. It or every practitioner knows that the muscular strength in individuals labouring under a pleurisy inflammation, will in many instances, continue unimpaired till even the termination of the complaint; whereas from the time that the influence of mercury becomes evident; the general strength begins to decline rapidly.

It appears therefore that the mercurials do not only produce the same injurious changes upon the system with those arising from an inflammation of another kind, but also certain effects peculiar to itself, mercury says Dr Carmichael produces a fever differing from all others, which is attended with an increase of the various secretions If then the inordinate action of the heart and arteries

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consequence of the use of mercury be attended with an altered state of the blood and debility, and at the same time accompanied with an increase of the various secretions, this too without having any tendency to allay the inordinate action of the heart and arteries it must inevitably undermine with rapidity the constitution, and should there at the time exist any ulcerations on the body they must certainly be changed into mercurial sores. These effects of mercury from prejudice and inaccurate observations have led Physicians to attribute them to other causes. But experience has proved such conclusions to be absurd. Thus the injurious effects of mercury in syphilitic cases were attributed to the joint effects of the mercury and the venereal poison. At other times to the mercury calling into action other diseases, as scrofula, scurvy, cancer &c. or to the alteration, to which the appellation of phagedena was given. These were the unfounded opinions of writers, till the publication of a work by Mathias on the mercurial diseases, in which he has shown conclusively, that there

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are certain changes produced upon the ulcerations originally syphilitic and also certain derangements of health wherever the mercurial medicines have been administered either in too acrid a form or in too large quantities.

In consequence of mercury affecting the nervous system, it has produced a train of symptoms that are far from being salutary, being attended with distress and danger, and permanent injury to the constitution. These of course occurring in different degrees in different subjects, temporary delirium is induced in some, in others, palsy and epilepsy take place, and others have their memory and judgement more or less impaired, in some instances even death has been the consequence. Among the anomalous complaints that are produced from the use of mercury, by its action being devolved on the nervous system, may be enumerated an impaired or capricious appetite with all the ordinary symptoms of indigestion occasion

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retching as and flatulence in the morning, with a disturbed sleep, the vision impaired and frequent pains in different parts of the body. &c. In many instances when given in sufficient quantities it produces other deviations from health, and of those the most common is an excessive diarrhoea, often accompanied with a discharge of blood from the bowels, and is apt to occur even where the mercury, has been rubbed on the surface. Experience has proved that in patients labouring under scrofulous affections or ulcerations of the soft parts and caries of the bones which may be owing to an ill condition of the system, these diseases are much accelerated in their progress by the use of mercury. Another consequence of this medicine is, that it produces a violent affection of the skin, which has been styled under various names by different writers as the erythema mercuriale, eczema mercuriale, hydrargyria &c. This eruption of the skin is usually preceded by heat and itchiness, a frequent pulse, a white tongue, gradually becoming deeper, the erup-

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tions proceeding by degrees over the whole body, with tume-
faction of the skin and great tenderness, heat &
itching &c.

To these many other effects equally as distressing
might be added, but those that have been named are suf-
ficient to point out the danger that always exists, in
too freely administration of the mercurial medicines. But
notwithstanding all the hazards that may result
from an indiscriminate use of mercury, there can be
no doubt whatever, but that under certain restrictions,
it is a medicine that is deserving of high claims to
the confidence of the medical profession, but it cannot
be admitted, as some have contended for, that it is
a medicine of value during all the stages of febrile
diseases, even in the commencement or before the gum
is formed. This method of treatment is founded on
the principle suggested by the celebrated Hunter, that
two different diseases cannot exist in the body at one
and the same time, without they exist in totally different

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structures. This fact is too well established to be denied, with this view then, the mercurials are to excite a diseased action in the system that is less dangerous than the primary one they are acting with sufficient power to supersede it. That such is the effects of mercury is unanimously admitted in some instances. But if it were practicable to excite the mercurial action suddenly, is it not well known by us, that it does not, in many instances, subdue the fever and that the effects of the medicine have been such as to prove fatal? and yet it is contended by many that the only weighty objection to this plan of treatment, is the occasional occurrence of Salivation, and should this be the consequence notwithstanding the temporary inconvenience to the patient, it would be a matter of little moment in comparison with the protracted suffering and danger which are always infallibly prevented.

Though we are told by those who advocate

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the use of mercury in fevers, and place their whole reliance on it in their treatment, that it is a sovereign remedy, when it excites ptyalism, it is to be recollected, that this is by no means an infallible effect, as cases are numerous enough to the contrary on records. It appears now says an author to be a point, that is unsettled, whether there have been more lives produced by the effects of a tinge in ptyalism, than have been lost by the unsuccessful endeavours to mercurialize the system, and there by excluding other measures that might have proved successful. To estimate this practice correctly and to judge its just merits, & the extent to which it is to be relied on, by the Physician, it may be necessary to enquire into all the various states of the system, that have been found mostly to resist its action, and how far artificial means may be required to render them susceptible to its action, When the mercurial medicines have failed to excite in the system their peculiar action, or even

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when it so happens, that persons are met with unsusceptible to the action of the medicine as to make it extremely difficult and in some instances even impossible to excite a salivant effect, unless measures be resorted to capable of removing such resistances to its operation. Those states of the system have been a very feeble, or a very full and phlogistic habit of body, and especially where there existed, at the time, much febrile action. In the former condition of the system opium, wine and the bark, are found to be of an indispensable utility, and in the latter, wherever it was characterised by a high degree of arterial excitement the mercurial action has never been known to be readily excited unless preceded by copious depletions. There is still an other state of the system, which is said neither to be connected with plethora nor debility; but in which, notwithstanding there exists a powerful resistance to the operation of the remedy and in which neither bleedings or opiates are of the least avail. Under such circumstances, it will require the most powerful

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and prompt measures, such as purging, vomiting &c. to awakening the susceptibility of the system to the influence of the remedy. It is remarked by a respectable writer Dr Paris, that he has always found in his practice the system in a strong, and healthy condition, to offer a resistence to the operation of mercury, which is overcome the moment the stomach becomes deranged the circulation languid, or the general tone of the system impaired. The attempts to explain these effects of nausea and other causes, which may lead to derange the digestive organs, by suggesting, that they influence the action of mercury, by weakening the powers, which nature in a healthy state may possess in overcoming the resistence, to the admission of poisonous substances into the circulation. This explanation, is, totally hypothetical, and it will only be necessary for me to state to the contrary, that it is now perfectly ascertained, that a state of health is in general

eral the most favourable condition of the system for the mercurial action to be excited, and consequently, every deviation from this state, must offer in proportion a resistance to its operation.

If then it be true, that the mercurial action cannot be readily excited where there exists much morbid excitement, either of a feeble and exhausted condition or of a very full and plethoric state of body, it must appear very evidently that too little stress has been laid upon the importance of avoiding the use of the mercurial medicines, under such circumstances, till a course of preparatory means be instituted, so as to favour its operation. The daily use of mercury in the cure of syphilis, serves to exemplify satisfactorily the peculiarity of its action and to point out to us, what condition of the system is most favourable to their constitutional affections. If it be administered without paying due regard, to the precautions recommended by authors, how often do we observe it to be

administered

administered for days and even weeks, in patients of a plethoric habit, without affecting the constitution, or without benefiting in the slightest degree, the disease. When finally it takes possession of the system, its ravages upon the constitution will be vastly more to be dreaded, than those it was designed to alleviate. Then if the importance of regulating the action of the heart and arteries be conclusively shown, in order that the mercurial action may be more readily and safely excited in this disease, may it not be regarded as a clear proof that it should always be done in the high arterial excitement that accompanies the various febrile diseases.

From the foregoing observations, it will be perceived, that the febrile diseases have been represented, as accompanied with a morbid condition of the arterial system and the action of the remedy & that of the disease, to be incompatable with each other, and notwithstanding the authority in favour

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of the practice, the operation of mercury must not only be incompatible with the indications which it is given to fulfil, but even eminently dangerous. For from the uncertainty there is, when and to what extent, its action will be produced, when once the system is considered susceptible to its influence. The practice of prescribing the mercurial medicines in the forming stages of most fevers, may at present be said to be, at least a very common, if not a universal one, in this as well as other countries, and particularly with the physicians of the southern parts of the United States, but their success in exciting the salivant effects of the remedy, must in a great many instances be dependant on the administration of the medicine in those fevers, which if they were perfectly formed, in character or type, would have yielded to a practice much less hazardous and more expeditious. For there are but few physicians who are not well aware of the fact, that if they are not called on, for medical

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aid, previous to the third or fourth day, after the fever has been well marked, that there is no certainty of success, in procuring the salivant effects of the medicine and that it is liable, when it has any influence instead of diminishing to coincide with the existing morbid action and thus aggravate the very symptoms which it was intended to counteract.

Condemning the mercurial medicines in febrile diseases, during the violence of their inflammatory stages, while there exists a high degree of arterial excitement, yet it must unquestionably be admitted, that there are some stages of febrile diseases in the treatment of which, the indication of the mercurial medicines, are not only called for, but during which the constitutional effects of it may be readily excited. It is remarked by Dr Jackson, that where the disease is of the intermittent or remittent type, the intermission or remission distinct, the skin soft, thin warm and perspirable, the pulse free

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and expansible, in short where the symptoms are of a secondary degree of violence, the salivary glands are for the most part soon affected by mercury, whether given internally or applied externally by frictions, and that when the salivary glands are affected, and a free and copious salivation is established, the disease ordinarily abates in force, even sometimes ceases altogether. The rule is a general one, but not absolute. Instances occur, and not unfrequently, where the paroxysm returns after salivation is fully established, even some are recorded where death has not been averted, though the repeated signal of safety was present.

2th Where fever is, of the continued kind whether endemic, epidemic or contagious, the symptoms violent, the heat ardent the skin compacted, dry and torpid, as connected with excessive excitement and precipitate action, or thick, greasy, damp and inanimate as connected

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with excessive excitement and precipitate action or thick, greasy, sharp and inarticulate as connected with a constriction and diminished energy of the capillary system, calomel is sometimes given internally in great or less, mercurial ointment being at the same time rubbed upon the surface in great quantities, without the salivary glands, being in any degree affected or it, in other cases the gums become spongy and livid, the breath emits the mercurial fector, but no change is effected in the course of the disease, which proceeds uninterruptedly to a fatal or favourable termination independently of the salivation of the system with mercury. 3dly In cases of slow movement and protracted duration, more particularly in such as are complicated with congestion, in the more important organs within the abdominal cavity, the internal exhibition of mercury and the external application of it by friction, carried to the extent of producing more or less of ptyalism, has appeared to myself to be a remedy, of value, in fact to be the only remedy, especially as aided

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by medicated diet by frictions, bathings, the occasional abstraction of blood, in small quantities with exercise by gestation on which any dependance, for effecting a cure, or even for prolonging, of life. It appears as conducted in this manner, to operate changes on diseased organization, so far the foundation on which such changes as tends to health may be effectually operated by other means.

As respects the foregoing remarks it may be necessary in this place to state, that the influence of climate and situation, upon the constitution of the inhabitants in different parts of the world are extremely great, and that diseases of the same kind will not only require a treatment differing in degree but in kind. Thus we learn from the writings of medical men in different countries, as for instance the inhabitants of France, bear venesection in almost every form of fever that occur there, without injury and often with evident benefit. But in Italy it is injurious nearly in every instance. There are some constitutions, as the Germans, which Emetics and other evacuents agree

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with, very well, while sudorifics and cordials but best to animate and warm the phlogistic Hollander. Now from this great influence of climate and situation upon the inhabitants in different countries and in different parts of the same country, will it not be reasonable to suggest that in the low latitudes of the West Indian islands, the diseases more frequently from their character, indicate the use of mercury, and that constitution is more susceptible to its operation than it is in different parts of the United States. From this circumstance it must appear, that it is highly essential for a physician to compare the climate and the soil of the country, in which another has been in the habits of making his observations with those of his own, before he submits to be governed by his rules or advice. Unless this is done he will be at a loss to know, whether the practice of the author that he may have the occasion to consult, will apply to the disease where he resides or not.

In this climate intermittent fevers

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are seldom so obstinate as not to yield readily to remedies that are much milder in their operation and which will produce all that could be expected from the mercurials, without injuring in any degree the general system, whereas none of the mercurial preparations can be administered, without the risk of some consequences ensuing that could neither be expected nor intended, by the physician. By some writers the mercurials are much praised in the treatment of typhus fever. Dr Rush has stated that the pulse become fuller, slower, and was succeeded by evident amendment in the typhus action on the supervention of salivation. It is also observed by Dr Warren, that in cases of typhus when debility had become very great and in which stimulants, such as wine bark &c. had been used ineffectually, a few doses of calomel excited the system to action and the patient immediately began to recover. By Armstrong, this practice is highly extolled, particularly in the congestive form of the disease. He states that he gave it in large doses in its early stages so as to

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procure full alvine evacuations, and at the same time to obtain the alterative effects of the medicine as early as possible.

To doubt such authority, as the as the above cited, may appear absurd, but it may be said with safety, that it is a question with physicians, whether mercurial salivation ought ever to be attempted in typhus fever. for experience teaches that, untill the violence of the fever is subdued, either by the progress of the disease, or by the aid of some other remedies, it is found totally impracticable to produce any such effects, of the remedy. This objection might be urged against the use of those medicines in all fevers where there is much derangement in the action of the heart and arteries, whether they be of an intermittent remittent or of a continued type. It has been remarked by high authority that as a general rule, an attempt should only be made to mercurialize

ize the system in those fevers of a remittent form and which are symptomatic of local inflammation, and in such cases of those only, are protracted or dangerous after liberal depletions There is in general connected with the remittent fevers, in many sections of the United States a morbid condition of the ~~biliary~~ secretions and not unfrequently symptoms of local inflammation, which are independent of the existing fever, here the use of mercury is not only called for, but when the circulating system has been moderated, and by the necessary evacuents, the secretions are all opened, in general the remission of the fever, will be sufficient to influence the action of the medicine, with the happiest effects.